



FEMA

Mitigation ...In Massachusetts

Mitigation (mit.i.ga.tion) n. -

Measures taken to reduce adverse impacts.

The Commonwealth of Massachusetts Department of Conservation and Recreation (DCR) and the Massachusetts Emergency Management Agency (MEMA) partner with the Federal Emergency Management Agency (FEMA) to deliver the following FEMA grants:

The **Hazard Mitigation Grant Program (HMGP)** provides a percentage of total Disaster Assistance funds for mitigation measures to be implemented during the immediate recovery after a disaster.

The **Flood Mitigation Assistance (FMA)** Program provides funding to states and communities for measures that reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other structures insured under the National Flood Insurance Program (NFIP).

The **Pre-Disaster Mitigation (PDM)** Program provides competitive grants to states, tribal governments and local governments for cost-effective hazard mitigation that complements a comprehensive mitigation program.

Town of Becket...Bank Stabilization Project Improves Traffic Flow Positive Impact on Road Safety, Emergency Response and Tourism

The Town of Becket, faced with a roadway in jeopardy of erosion, developed a plan to permanently stabilize this roadway through an environmentally sensitive bank stabilization structure. Brooker Hill Road was collapsing into adjoining Shaker Mill Brook and was in serious danger of additional failure. One lane of the road had collapsed, causing the road to be reduced to one lane, one-way. This put a hardship on residents, emergency response vehicles, and traffic to the elementary school. Tourism also had been hurt by the restrictions on this road, which connects one side of town to the other, putting a strain on the economic development and growth of North Becket Village.

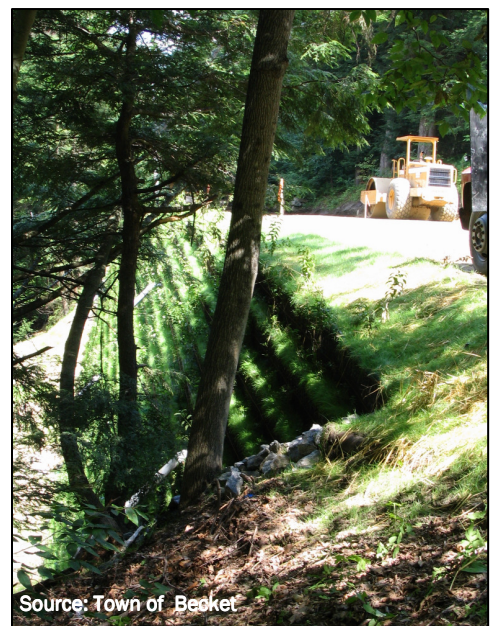
Becket applied for and received a grant from the Federal Emergency Management Agency (FEMA) to help fund the project costs, which totaled \$259,383. FEMA provided a grant for \$186,348 through the Pre-Disaster Mitigation Competitive (PDM-C) Grant Program. The success of the project was dependent on the intergovernmental coordination and cooperation among the various town departments, Massachusetts Emergency Management Agency (MEMA), Department of Conservation and Recreation (DCR), the National Park Service and FEMA.

(Continued on page 3)



Source: Town of Becket

Before Stabilization.



Source: Town of Becket

After Stabilization.

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Town of Dracut Receives Mitigation Grant ... Completes a Sewer Lift Station Project

The Town of Dracut, concerned over the ongoing potential for flooding of the sewer lift station at 150 Turtle Hill Road, developed a solution that would enable the town to mitigate a potential public health risk. During normal operations, sewage is pumped up from the neighborhood to the station. If the lift station were to be flooded, operations would cease. Houses in this neighborhood would become threatened by a risk of sewage back-up which ultimately could lead to a significant public health issue if the lift station was inoperable for an extended period of time.

Dracut applied for and received a grant through the Federal Emergency Management Agency's (FEMA) Hazard Mitigation Grant Program to offset the majority of the project costs required to fund this risk mitigation project. The total cost of the project was \$48,000. This sewer lift station currently services 311 residences. At full build-out, it would service 415 residences. The lift station was originally built to ½ foot above BFE (Base Flood Elevation) of 121 feet. The lift station was still threatened by flooding from nearby Beaver Brook, because the flood hazard

appears to have increased since the original Flood Insurance Study was published; therefore the station required additional protection. If this pump were to sustain flooding in excess of the BFE, the pump and related electrical components could fail. That failure could cause sewage to back up into homes, causing a significant risk to public health. The project consisted of building a 12-inch thick concrete wall surrounding the station. The wall is centered on one-foot thick, two-foot wide footings. The wall is 10 feet total in height, with 6'6" below grade, and 3'6" above grade, to prevent floodwaters from damaging the electrical components. The floodwall is providing an additional 3 feet of protection above the existing BFE. There is a 4-foot wide service opening to allow access to the station. The opening will be closed with stop logs, already stored at the site, when the lift station is at risk of flooding. The project was completed in November of 2008.

This neighborhood was vulnerable to the potential impact of a failed sewer lift station before this wall was installed. Now there is an increased level of protection to this pump station and related electrical components as well as the homes serviced by this sewage pump.



Before Mitigation Project

After Mitigation Project



Town of Harwich...

Safety of Workers and Residents in Shelters Is a Top Concern

In times of emergency the Harwich Community Center, located at 100 Oak Street, serves as a Red Cross Shelter. Additionally, it houses Channel 18, the local access cable network. In order to ensure that the shelter workers and residents are as safe as possible during an emergency, the town of Harwich decided to invest in hurricane panels that could be installed to protect the building and its occupants. Harwich applied for and received a grant through FEMA's Hazard Mitigation Grant Program. The total project cost was \$53,900.

The project consists of the installation of corrugated polycarbonate resin hurricane shutter panels. By protecting the windows from high velocity wind damage and flying debris, it enhances the

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integrity of the building, and insures the safety of the local residents and workers utilizing it as a shelter. These shutters protect not only the windows and doors they cover, but also the people and equipment inside the building. Once a window or door has been breached by hurricane winds tremendous pressure is brought to bear on interior walls and upward pressure on



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the building's roof. This can lead to roof failure, which exposes the entire contents of the building to the storm.

Shutters are a first line of defense against a hurricane. Studies show that engineered storm shutters are more effective and safer to use than plywood panels.

The shutter panels are "see-through", therefore everyone can remain safely inside and still monitor the situation outside. Having hurricane panels at the Harwich Community Shelter provides a safe place for residents and workers to ride out the storm.

Town of Becket (continued)

The project site involved a sensitive design because Shaker Hill Brook, a tributary of the Westfield River, is a Nationally Designated Wild and Scenic River. The National Wild and Scenic Rivers System was created by Congress in 1968 to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.

The project, completed in September 2008, provides permanent stabilization to the affected portion of Brooker Hill Road through the placement of a slope retention system made of an interlocking retention wall. Not only does this system provide a sound technique for solving road erosion, it also allows

for native vegetation to grow which adds to the stability of the slope and its natural characteristics.

Most significantly, the project has allowed the roadway to re-open as a two-lane, two-way road, which greatly enhances the safety of residents, and the elementary school children, and restore adequate emergency response time to at least pre-disaster conditions. It will also allow for continued tourism in the area, which will help in the economic growth of the town.

Framingham Installs Backflow Preventers

Storm Water Drainage Back-up Problem Solved

Town of Framingham was faced with recurring flooding on Auburn Street and the Auburn Street Extension causing repetitive damages to the town and private properties as a result of the Sudbury River backing up at these locations into the town's storm water drainage system. In order to mitigate this problem, the town decided to install two backflow preventers, a component of which is a "duckbill" style check valve. This valve allows liquids to flow in a single direction. These valves are used in situations where the direction of liquid flow must not be allowed to reverse itself.



At the first installation, located at 18 Auburn Street, a 24" duckbill style backflow preventer was installed over and around a 24" reinforced concrete outfall pipe.

The installation required the assistance of an excavator as the preventer weighed 220 pounds.

At the second location, 18 Auburn Street Extension, a 12" duckbill style backflow preventer was installed around a 12" reinforced concrete outfall pipe. The preventer weighed 50 pounds and was installed by hand. However, due to continued high water conditions, the contractor first installed a cofferdam to remove water from the immediate

site of installation. A cofferdam is an enclosure within a water environment constructed to allow water to be removed for the purpose of creating a dry work environment.

The total cost of the project was \$16,387. Framingham was successful in receiving a Flood Mitigation Assistance grant from FEMA for \$12,290. The mitigation grant award included final design, permitting, and construction.

Check valves are engineered to allow the flow of fluid across a pipeline system or port in one direction only. They are re-active valves, meaning they are activated by the amount and the pressure of the fluid present in the system environment. These valves are typically used in back-flow prevention applications, flood prevention environments, and wastewater treatment entities.

To learn more about FEMA mitigation grants, please contact:



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